

CLAIMS

What is claimed is:

1. A method comprising:

transmitting a complete set of digital content to each of a plurality of content reception systems substantially simultaneously;

receiving feedback from a content reception system indicating that the content reception system received an incomplete set of digital content and indicating particular missing content;

determining content to re-transmit based on the feedback; and

transmitting the determined content.
2. The method of claim 1, wherein determining content to re-transmit includes referencing predetermined re-transmission instructions and determining based on the instructions and the feedback.
3. The method of claim 1, further comprising receiving feedback from each of the plurality of content reception systems, and wherein determining includes determining content to re-transmit to the content reception system based on each of the feedback and based on predetermined policy driven re-transmission instructions.
4. The method of claim 1, wherein transmitting the complete set of digital content further comprises:

accessing digital content;

dividing the digital content into a plurality of ordered content portions;
creating a manifest that indicates each of the content portions; and
transmitting the complete set of digital content comprising the plurality
of content portions and the manifest.

5. A method comprising:

receiving an incomplete set of digital content from a content
transmission system;

performing content reception verification to determine that there is a
particular portion of missing content;

transmitting an indication that the set of content is an incomplete set
including transmitting an indication of the particular portion of missing
content;

receiving digital content that comprises at least some of the particular
portion of missing content; and

combining the received digital content with the incomplete set of digital
content.

6. The method of claim 5:

wherein the received incomplete set of digital content includes a
manifest that indicates a corresponding complete set of digital content;
and

wherein performing content reception verification to determine that there is a particular portion of missing content includes:

locating an identifier of a content portion in the manifest; and

recording that the content portion is missing if the identifier does not correspond to an identifier of a received content portion.

7. The method of claim 5, further comprising providing the combined content to a recipient.
8. A machine-readable medium having stored thereon data representing sequences of instructions that when executed cause a machine to perform content reception verification on an incomplete set of digital content received from a one way communication link to determine that there is a particular portion of missing content.
9. The machine-readable medium of claim 8, wherein the instructions to perform content reception verification further comprise instructions causing the machine to:

locate an identifier of a content portion in a manifest that indicates a complete set of digital content; and

record that the content portion is missing if the identifier does not correspond to an identifier of a received content portion.
10. The machine-readable medium of claim 8, wherein the instructions to perform content reception verification further comprise instructions causing the machine to:

record that the content portion is missing in a missing content log; and
provide feedback indicating that the set of content is an incomplete set
by transmitting the missing content log.

11. A content reception system comprising:

a data receiver to receive data via a one way communication link; and
a reception verification system to determine if there is missing data and
when there is missing data to provide feedback that indicates the
missing data via a second communication link.

12. The system of claim 11, wherein the one way communication link has a
bandwidth and wherein the second communication link has a lower
bandwidth.

13. The system of claim 11, wherein the data receiver comprises an
antenna to receive the data, wherein the system comprises a
demodulator to demodulate the received data, and wherein the content
reception system provides feedback via a telephone line.

14. The system of claim 11, wherein the data receiver is a data receiver to
receive a plurality of data portions and a manifest indicating a complete
set of data portions, and wherein the reception verification system is a
reception verification system to determine if there is missing data by
comparing the received manifest to the received plurality of data
portions to determine if any of the complete set of data portions were
not received.

15. A content reception system comprising:

a data receiver to receive an incomplete set of digital content via a one way communication link having a bandwidth; and

a reception verification system to determine that the received set of digital content is an incomplete set by comparing received data indicating what a complete set would contain with the received incomplete set and to provide feedback that indicates the particular missing digital content that is needed to complete the set of digital content by a second communication link having a lower bandwidth.
16. The system of claim 15, wherein the content reception system is a content reception system to receive responsive digital content that is at least partially responsive to the feedback and to combine the responsive digital content with the incomplete set of digital content.
17. The system of claim 15, wherein the reception verification system is a reception verification system to maintain a missing content log that records missing content of the incomplete set of digital content and to provide feedback based upon the missing content log.
18. A content transmission system comprising:

a transmitter to transmit a complete set of digital content via a one way communication link having a bandwidth; and

a re-transmission system to receive an indication of particular missing digital content that is needed to complete an incomplete set of digital

content corresponding to a content reception system via a communication link having a lower bandwidth and to re-transmit content based on the indicated missing content.

19. The system of claim 18, wherein the one way communication link is a broadcast communication link that simultaneously transmits the digital content to a plurality of content reception systems.
20. The system of claim 18, wherein the content transmission system is a content transmission system to receive the indication and to re-transmit digital content by referencing predetermined re-transmission instructions and taking the indication into consideration.
21. The system of claim 18, wherein the transmission system retransmits less digital content than was initially transmitted, and wherein the transmission system re-transmits the digital content at a scheduled time rather than during a real time sliding window.
22. The system of claim 18, wherein the content transmission system receives feedback indicating missing content from each of a plurality of content reception systems and retransmits content according to each of the feedback and according to predetermined re-transmission instructions.
23. A system comprising:

a content transmission system to transmit digital content to a plurality of content reception systems via a communication link;

a content reception system to receive at least some of the digital content via the communication link, to perform reception verification processing by determining if a portion of the content is missing, and to provide feedback indicating that the portion is missing.

24. The system of claim 23, wherein the content transmission system is a content transmission system to transmit the digital content by broadcasting digital content via a one way communication link and to receive the feedback via a second communication link.

25. The system of claim 23, wherein:

the content transmission system is a content transmission system to transmit a manifest indicating a complete set of content portions for a particular content; and

the reception verification system is a reception verification system to receive the manifest and to perform reception verification processing by using the received manifest to determine if any of the content portions indicated in the manifest were not received.

26. The system of claim 11, wherein the content transmission system is a content transmission system to receive the feedback indicating the missing content and to retransmit digital content based on the feedback.

27. A system comprising:

a content transmission system to transmit a complete set of content via a communication link;

a content reception system to receive a corresponding incomplete set of content via the communication link; and

feedback means to allow the content transmission system to indicate missing content to the content reception system.

28. The system of claim 27, wherein the content transmission system is a content transmission system to re-transmit content based on the indication of missing content.
29. The system of claim 27, wherein the content reception system is a content reception system to combine the re-transmitted content and the incomplete set of content.

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